

**REMARKS**

Applicants acknowledge receipt of the Office Action mailed April 1, 2009.

In the Office Action, the Examiner objected to the abstract; objected to the disclosure; objected to claims 54-132; rejected claims 102 and 128 under 35 U.S.C. § 112, second paragraph; and rejected claims 54-132 under 35 U.S.C. § 103(a) as being unpatentable over *Rheinhardt* (U.S. Patent No. 6,601,625) in view of *Vaughn* (U.S. Patent No. 1,993,814) and further in view of *Alonso et al.* (U.S. Patent No. 6,533,010).

In this Amendment, Applicants amend claims 54, 74, 76, 102, 107, 125, and 128. Upon entry of this Amendment, claims 54-132 will remain pending. Of these claims, claims 54, 76, and 107 are independent.

The originally-filed specification, claims, abstract, and drawings fully support the amendments to claims 54, 74, 76, 102, 107, 125, and 128. No new matter has been introduced.

Based on the foregoing amendments, Applicants traverse the objections and rejections above and respectfully request reconsideration for at least the reasons that follow.

**I. OBJECTION TO THE ABSTRACT**

The abstract of the disclosure stands objected to because allegedly “it is a copy of the first page of the PCT.” (*Office Action*, p. 2, II. 2-3). Applicants respectfully submit that a replacement abstract was filed with the Preliminary Amendment on August 16, 2006. Applicants therefore request that the objection to the abstract be withdrawn.

## II. OBJECTIONS TO THE DISCLOSURE

The disclosure, including the abstract, stands objected to because allegedly “[t]he term ‘tyre’ should be replaced with the term --tire-- throughout the specification and abstract, for grammatical clarity. The term ‘optimising’ should be replaced with the term --optimizing-- throughout the specification for grammatical clarity.” (*Office Action*, p. 4, para. 2). Applicants respectfully disagree.

According to § 608.01 of the M.P.E.P.,

Examiners should not object to the specification and/or claims in patent applications merely because applicants are using British English spellings (e.g., colour) rather than American English spellings. It is not necessary to replace the British English spellings with the equivalent American English spellings in the U.S. patent applications. Note that 37 CFR 1.52(b)(1)(ii) only requires the application to be in the English language. There is no additional requirement that the English must be American English.

Applicants therefore request that the objections to the disclosure be withdrawn.

## III. OBJECTIONS TO THE CLAIMS

Claims 54-132 stand objected to because allegedly “[t]he term ‘tyre’ should be replaced with the term --tire-- throughout the claims, for grammatical clarity.” (*Office Action*, p. 4, para. 3). Applicants respectfully disagree. As discussed above, § 608.01 of the M.P.E.P. states that “[i]t is not necessary to replace the British English spellings with the equivalent American English spellings in the U.S. patent applications.”

Applicants therefore request that the objections to claims 54-132 be withdrawn.

The Examiner further states, “[i]n claims 57-68, 79-90, and 110-121, the phrase beginning with ‘with respect to...’ should be removed, due to the fact that this phrase is redundant” *Id.* Applicants respectfully disagree. Applicants submit that the phrase

beginning with “with respect to” is necessary in order to maintain consistency with respect to the mathematical relationships and concepts disclosed, for example, on page 15, lines 4-32 of the specification. Applicants therefore request that the objections to claims 57-68, 79-90, and 110-121 be withdrawn.

Furthermore, the Examiner alleges, “[i]n claim 76, line 7 and claim 107, line 2, the term ‘a’ should be removed, for grammatical clarity.” *Id.* Applicants submit that the objections to claims 76 and 107 have been rendered moot by the amendments to claims 76 and 107. Applicants therefore request that the objections to claims 76 and 107 be withdrawn.

The Examiner then asserts, “[i]t appears that the second instance of the term ‘decreasing’ should be replaced with the term --increasing-- in claims 95 and 123 to correspond to similar claim 74.” (*Office Action*, p. 5, para. 3). Applicants respectfully disagree. Applicants submit that support for claims 95 and 123 may be found, for example, on page 11, lines 10-13 of the specification. Rather, Applicants have amended claim 74, support for which may be found, for example, on page 11, lines 15-18 of the specification. Applicants therefore request that the objections to claims 95 and 123 be withdrawn.

The Examiner further states, “[c]laim 125 is missing punctuation at the end of the claim.” *Id.* Applicants submit that the objection to claim 125 has been rendered moot by the amendment to claim 125. Applicants therefore request that the objection to claim 125 be withdrawn.

#### **IV. 35 U.S.C. § 112, SECOND PARAGRAPH, REJECTIONS**

Claims 102 and 128 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly “being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.” (*Office Action*, p. 5, para. 5). Specifically, the Examiner asserts, “[t]he term ‘major’ in claims 102 and 128 is a relative term which renders the claims indefinite.” (*Id.* at p. 5, para. 6). Although Applicants do not necessarily agree with the Examiner’s assertion, Applicants submit that the rejection of claims 102 and 128 has been rendered moot by the amendments to claims 102 and 128. Applicants therefore request that the rejection of claims 102 and 128 under 35 U.S.C. § 112, second paragraph, be withdrawn.

#### **V. 35 U.S.C. § 103(a) REJECTION**

Applicants respectfully traverse the Examiner’s rejection of claims 54-132 under 35 U.S.C. § 103(a) as being unpatentable over *Rheinhardt* in view of *Vaughn*, and further in view of *Alonso*. Applicants respectfully disagree with the Examiner’s arguments and conclusions and submit that amended independent claims 54, 76, and 107 patentably distinguish over *Rheinhardt*, *Vaughn*, and *Alonso* at least for the reasons described below.

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. See M.P.E.P. § 2142, 8th Ed., Rev. 6 (Sept. 2007). Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. See *id.* “A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it put the public in possession of the claimed invention.” M.P.E.P. § 2145. Furthermore,

“[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art” at the time the invention was made. M.P.E.P. § 2143.01(III), internal citation omitted. Moreover, “[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” M.P.E.P. § 2141.02(I), internal citations omitted (emphasis in original).

“[T]he framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). . . . The factual inquiries . . . [include determining the scope and content of the prior art and] . . . [a]scertaining the differences between the claimed invention and the prior art.” M.P.E.P. § 2141(II). “Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art.” M.P.E.P. § 2141(III).

Independent claim 54 recites a method of controlling an inner pressure of a tyre mounted on a rim, the method comprising the steps of: “bringing [an] inner volume of said tyre into communication with [a] tank when the pressure of the inner volume of said tyre is lower than [an] operating pressure, by means of at least one mechanical valve opening which is controlled by an elastic element having an elastic constant, the elastic element being operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve.”

Independent claim 76, and similarly independent claim 107, recites, “at least one valve adapted to regulate communication between [a] tank and [an] inner volume of [a] tyre, said valve comprising at least one elastic element operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve to bring said tank into communication with said tyre when pressure in said tyre is lower than [an] operating pressure.”

*Rheinhardt* appears to disclose an apparatus that mounts on a rim of a vehicle wheel on which a tire may be mounted. The apparatus includes a high pressure reservoir for receiving and storing compressed air from an outside source, a first mechanical valve that permits compressed air from an outside source to be directed into and stored in the high pressure reservoir, a second mechanical valve that directs air from the high pressure reservoir into the air chamber of a tire, a third mechanical valve that releases air from the air chamber of the tire, and a fourth mechanical valve that releases air from the high pressure reservoir. (*Rheinhardt*, Abstract).

As admitted by the Examiner, “*Rheinhardt*, however, does not disclose the valve having an elastic element therein with an elastic constant that varies with temperature.” (*Office Action*, p. 6, para. 8). *Rheinhardt* also fails to teach or suggest, “the elastic element being operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve” (emphasis added).

To cure the deficiencies of *Rheinhardt*, the Examiner relies on *Vaughn* and *Alonso* and asserts, “*Vaughn* teaches the use of a valve including two concentrically arranged springs (16 and 20), wherein spring 16 is an elastic element responsive to temperature” (*Office Action*, p. 6, para. 8); and “*Alonso* et al teaches the use of a

valve 70 including an elastic element whose elastic constant varies within a temperature range of -1 to +49 degrees C" (*Id.* at p. 7, II. 3-4).

Such teachings, even if present in *Vaughn* and *Alonso*, which Applicants do not necessarily concede, however, fail to teach or suggest, "bringing [an] inner volume of said tyre into communication with [a] tank when the pressure of the inner volume of said tyre is lower than [an] operating pressure, by means of at least one mechanical valve opening which is controlled by an elastic element having an elastic constant, the elastic element being operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve," as recited in independent claim 54, and similarly independent claims 76 and 107 (emphasis added).

*Vaughn* appears to disclose thermostatic devices for automatically controlling the temperature of water heaters and the like which are heated by gaseous fuels. (*Vaughn*, p. 1, col. 1, II. 6-9). A valve body 1 includes a valve seat 5, where the "valve seat . . . form[s] two opposing annular abutment members between which the edge of a concavo-convex snap disk or valve member 16 is actuated from one abutment member to the other in opening and closing the valve." (*Id.* at p. 1, col. 2, II. 33-38). *Vaughn* further discloses a "heavy compression spring 20 acting between a collar 18 on the upper end of the valve stem and a second adjustable plug 19 screwed in the upper end of the hollow plug 14." (*Id.* at p. 2, col. 1, II. 4-6).

*Vaughn*, however, fails to teach or suggest, "the elastic element being operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve" (emphasis added).

The valve member 16, which the Examiner alleges is equivalent to the claimed “elastic element,” is not operatively associated with at least one non-deformable closure member for opening and closing a port in the valve (emphases added). The valve member 16 itself opens and closes a port in the valve as “the center of the snap disk or valve member 16 is moved from one extreme position to the other by the difference in pressures exerted by the spring [20] and the bellows [7].” (*Vaughn*, p. 2, col. 1, ll. 10-14). There is no “non-deformable closure member” associated with the valve member 16. It is clear from the disclosure in *Vaughn* that the snap disk or valve member 16 is intended to deform and snap from one position to another position. Such deformation of the valve member 16 is essential to the operation of the thermostatic apparatus. For comparison, the closure member 17 illustrated in FIG. 4 of the present invention is an elongated pin. One of ordinary skill in the art would understand that there is no deformation of the closure member 17 in the closure direction.

*Alonso* appears to disclose an air pressure regulating system mounted within a wheel and tire assembly. It primarily includes a temperature sensor and a compressor assembly having a compression chamber and valves. (*Alonso*, Abstract). *Alonso* further discloses, “[a]s temperature sensor 70 expands and contracts, it changes the volume in compression chamber 56 . . . The expansion and contraction of temperature sensor 70 achieve predetermined air pressure . . . Temperature sensor 70 hermetically house matter such as a liquid, which expands, or contracts, based on temperature changes.” (*Id.* at col. 4, ll. 38-56).

*Alonso*, however, fails to teach or suggest, “the elastic element being operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve” (emphasis added).

The temperature sensor 70, which the Examiner alleges is equivalent to the claimed “valve,” does not include an elastic element operatively associated with at least one non-deformable closure member for opening and closing a port in the temperature sensor 70 (emphases added).

Accordingly, with respect to independent claim 54, *Rheinhardt, Vaughn*, and *Alonso* fail to teach Applicants’ claimed combination, including, *inter alia*:

bringing the inner volume of said tyre into communication with said tank when the pressure of the inner volume of said tyre is lower than said operating pressure, by means of at least one mechanical valve opening which is controlled by an elastic element having an elastic constant, the elastic element being operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve (emphases added).

Additionally, with respect to independent claim 76, and similarly independent claim 107, *Rheinhardt, Vaughn*, and *Alonso* fail to teach Applicants’ claimed combination, including, *inter alia*:

at least one valve adapted to regulate communication between [a] tank and [an] inner volume of [a] tyre, said valve comprising at least one elastic element operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve to bring said tank into communication with said tyre when pressure in said tyre is lower than [an] operating pressure (emphases added).

As explained above, the elements of independent claims 54, 76, and 107 are neither taught nor suggested by the cited reference. Consequently, the Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and the claimed invention. Accordingly, no reason has been clearly articulated as to why the claims would have been obvious to one of ordinary skill in view of the prior art. Therefore, a *prima facie* case of obviousness has not been established for independent claims 54, 76, and 107. Claims 54, 76, and 107, and claims 55-75, 77-106, and 108-132 that correspondingly depend from claims 54, 76, and 107, are therefore patentable over *Rheinhardt, Vaughn*, and *Alonso*. Applicants therefore request that the rejection of claims 54-132 under 35 U.S.C. § 103(a) be withdrawn.

## VI. CONCLUSION

Applicants respectfully submit that claims 54-132 are in condition for allowance.

The Office Action contains characterizations of the claims and the related art with which Applicants do not necessarily agree. Unless expressly noted otherwise, Applicants decline to subscribe to any statement or characterization in the Office Action.

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

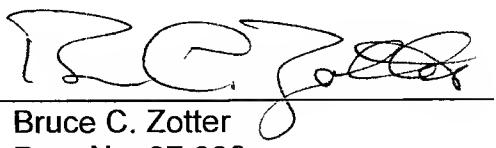
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Respectfully submitted,

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